

***The Last Disconnection Events in Comet Halley
in April 1986***

J. C. Brandt

Perhaps the most spectacular event in cometary plasma physics is the regular loss of the entire plasma tail and the growth of a new one. This is called a disconnection event or DE. Understanding the cause of DEs would be a most important step in our knowledge of cometary plasmas and the interaction with the solar wind.

Analysis of a sequence of DEs that occurred from 13-18 April 1986 shows that they correlate well with a magnetic, sector-boundary crossing and a complex magnetic structure in the solar wind with polarity reversals that occurred about one day later. These events are entirely consistent with sunward, magnetic reconnection as the DE mechanism.

If this mechanism is assumed, the fact that these DEs were the last ones in Comet Halley can be explained. By the time the sector boundary or the magnetic structures associated with them would encounter the comet on the next solar rotation, the plasma tail had disappeared (on 3 May) and no DE was possible.